TRANSMURAL BIOTECH

USE CASES

quantusPrematurity

Medical Imaging with Artificial Intelligence

quantusPrematurity — Estimation of the Risk of Spontaneous Preterm Birth

Product Description

quantusPrematurity is a non-invasive, artificial intelligence-based test that estimates the risk of spontaneous preterm birth through quantitative analysis of an ultrasound image of the cervix. Developed by Transmural Biotech, it provides early detection of cervical remodeling associated with the onset of labor, even before it manifests as obvious cervical shortening. Designed for the general pregnant population, it delivers results in just a few minutes via a web platform, without requiring any installation or equipment beyond the ultrasound machine.

Epidemiological Context

Preterm birth is the leading cause of neonatal morbidity and mortality worldwide, and in Spain it affects between 7% and 9% of births—more than 20,000 babies per year. Nearly 40% of preterm births are spontaneous, with no clear symptoms or risk factors appearing sufficiently in advance in the majority of cases. Transvaginal ultrasound-based cervicometry is currently the most widely used screening tool, but it identifies cervical shortening at relatively advanced stages of the process. quantusPrematurity expands this capability by analyzing changes in cervical texture associated with early tissue remodeling, which may allow for the anticipation of risk before cervical length is affected.

Use Cases

CU-PREMATURITY-01: Screening and Risk Stratification for Preterm Birth

Stakeholders	Obstetrician, midwife, pregnant woman undergoing routine prenatal care
Main Workflow	During obstetric visits, quantusPrematurity noninvasively assesses the risk of preterm birth by analyzing ultrasound images of the cervix, providing additional information that helps the specialist identify high-risk pregnant women in order to establish personalized follow-up and, if necessary, take early preventive measures.
Key Benefit	It allows for the anticipation of risk before obvious clinical signs appear. It facilitates the individualization of prenatal care.
Success Indicators	Early risk detection rate, reduction in unanticipated preterm births, and tailoring of care to the level of risk.

CU-PREMATURITY-02: Decision Support for High-Risk Pregnant Women

Stakeholders	Maternal-fetal medicine specialist, pregnant woman with risk factors for preterm birth (history of preterm birth, multiple pregnancy, short cervix)
Main Workflow	For pregnant women with risk factors for preterm birth, quantusPrematurity provides an objective and complementary estimate of actual risk, helping the specialist integrate this information with the medical history and other obstetric parameters, thereby facilitating decision-making and optimizing the management of high-risk pregnant women—especially when available clinical and ultrasound parameters do not provide a clear estimate of individual risk.
Key Benefit	Provides additional objective data in cases of diagnostic uncertainty. Helps tailor the intensity of follow-up and preventive interventions.
Success Indicators	Agreement between the estimated risk and the pregnancy outcome, reduction in unnecessary interventions, and alignment of clinical management with actual risk.

CU-PREMATURITY-03: Support in Obstetric Emergency Units in Cases of Threatened Preterm Labor

Stakeholders	On-call obstetrician, pregnant woman with symptoms of threatened preterm labor, obstetric emergency unit
Main Workflow	When a pregnant woman presents with symptoms of threatened preterm labor, quantusPrematurity analyzes the cervical image obtained during the emergency examination and provides a risk estimate that, together with the clinical presentation, helps determine whether to admit her, transfer her to a facility with a neonatal ICU, or discharge her with outpatient follow-up.
Key Benefit	Supports urgent management decisions with additional objective data. Helps prioritize transfer to referral centers in cases of the highest actual risk.
Success Indicators	Appropriateness of admissions and transfers relative to actual risk, reduction in unnecessary transfers, and time to clinical decision.